Lizards of the Genus *Anolis* (Reptilia: Polychrotidae) from Sierra Nevada de Santa Marta, Colombia, with Description of two New Species

Lagartos del Género *Anolis* (Reptilia: Polychrotidae) de la Sierra Nevada de Santa Marta, Colombia, con Descripción de dos Nuevas Especies

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Resumen

Una revisión de la herpetofauna de la Sierra Nevada de Santa Marta (SNSM), Colombia reveló la presencia de nueve especies del género *Anolis*, dos de las cuales son nuevas para la ciencia. Esta contribución ofrece un breve resumen de las especies que se encuentran en la SNSM y se describe las dos nuevas especies del grupo *tigrinus*, *Anolis umbrivagus* especie nueva y *Anolis paravertebralis* especie nueva. Las dos se encuentran en la selva nublada de la región de San Lorenzo en la parte noroeste de la Sierra. Cinco especies son endémicas al macizo de Santa Marta, incluyendo las dos nuevas especies, y cuatro tienen una distribución más amplia en Centro y Sudamérica. Se ofrece una clave en Inglés y en Español para la identificación de las especies de *Anolis* de la SNSM.

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NOVEDADES COLOMBIANAS Volumen 8 Número 1 Enero - 2005

Palabras Clave

Anolis, lagartos, lizards, *paravertebralis*, *tigrinus*, *umbrivagus*

Summary

A review of the herpetofauna of the Sierra Nevada de Santa Marta (SNSM), Colombia revealed presence of nine species of the genus *Anolis*, two of them are new to science. This paper offers a brief summary of the species found in the SNSM and describes the two new forms from the *tigrinus* group, *Anolis umbrivagus* n.sp. and *Anolis paravertebralis* n.sp. Both are found in the cloud forest in the San Lorenzo region in the northwestern part of the Sierra. Five species are endemic to the Santa Marta massif, including the two new species, and four have a wider distribution in Central and South America. Included is a key in English and Spanish to distinguish the species of *Anolis* of SNSM.

Introduction

Geographically Sierra Nevada de Santa Marta (SNSM) in northern Colombia is an unusual coastal massif that lies only about 42 km from the Caribbean. It stretches almost abruptly from the sea level to 5500 m, higher that any other peak of the Colombian Andes. Isolated from the Colombian Andes, SNSM has been considered by several biogeographers as a "continental island" (Vuilleumier, 1970; Duellman, 1979, Simpson, 1979). About 32% of the species of amphibians and reptiles are endemic to the Sierra, confirming its isolated situation.

Specimens examined for this report are deposited in different museums that we visited in Colombia and in the United Sates, enumerated in Acknowledgments. Two field trips for collecting and gathering ecological information were made to the Sierra Nevada de Santa Marta, one at the INDERENA Station in San Lorenzo and the other around Alto de Mira, a field station of the Fundación pro Sierra Nevada de Santa Marta on the northwestern slopes. For every species we give the original description and author(s) of reporting it for the Sierra.

Comments on *Anolis* of Santa Marta

With its nine species *Anolis* is the most numerous reptile genus in the Sierra Nevada de Santa Marta, Colombia (SNSM). It is equaled only by the frog genus *Eleutherodactylus* that also has nine species. *Anolis* has an uncanny ability of adapting to most varied environments. Its adaptive flexi-

bility is facilitated by the capacity of the species to successfully occupy closely related, frequently overlapping niches offering examples of partition of resources.

No less than five species (56%) of *Anolis* of the SNSM region are endemic and four (44%) are widely distributed lowland species. Of the latter, *A. tropidogaster* and *A. b. biporcatus* are also known from cloud forest where they have apparently penetrated along the clearings of the forest. It is a human produced phenomenon found in many parts of the SNSM where the forest is destroyed or replaced by clearings - roads, housing, agriculture - allowing the penetration of species from drier lowland areas into otherwise forested and humid higher altitudes. Thus, it is a "cloud forest" that is not any more cloud forest.

Colonos, the poorer criollo farmers, coca growers and to a lesser degree the guerrillas and the Kogi, the Natives of the Sierra, are rapidly razing away the remarkable SNSM forested ecosystems. As a result, some species are expanding their distribution, while due to the loss of habitat the distribution of many species is shrinking. If the trend of deforestation and aridification continues, in 20 or 30 years we will have to redefine the areas of distribution for many species of amphibians and reptiles. Of course, it is a worldwide trend.

All the endemic species of *Anolis* are found from the lower to the upper limits of the cloud forest that completely encircles the mountain. On the eastern side this zone is found between 1000 to 2300 m, while on the western and northwestern side of the SNSM the cloud forest extends from 700 to 1800 m; in some areas it extends even higher. At these altitudes the forest is exposed to trade winds with persistent mist and rain. On the western side of the SNSM the rainfall reaches about 3500 to 4500 mm/yr. (Van der Hammen, 1984).

A considerable majority of the specimens collected by the several explorers of the Sierra come from its northwestern part that is easier accessible and where the research station, Estación Inderena, of San Lorenzo is located. It was one of the support points that we also used while exploring the Sierra. The second collecting and study point was Alto de Mira, a research station of the Fundación pro-Sierra Nevada de Santa Marta also situated in the northwestern part of the SNSM.

Judging from the richness of the endemic material from other regions of SNSM, it is to expect that quite a few undescribed species of *Anolis* and of other groups of animals and plants will be found.

NOVEDADES COLOMBIANAS Volumen 8 Numero 1 Enero - 2005

The genus *Anolis* is unquestionably the most complex lizard genus. While many genera, species groups and species of amphibians and reptiles are gradually finding their phylogenetic schemes, much of the relationships of the species and species groups of *Anolis* are still relaying on a combination of phylogenetic explanations and phenetic resemblances (Williams, 1992). In recent comments about the *Anolis* of SNSM Ayala, Harris and Williams (1984) compared *A. menta* with *A. solitarius*. Williams (1992) discussed the differences between the *tigrinus* and *punctatus* groups of *Anolis* suggesting the convenience of using these informal groupings whenever individual taxa cannot be recognized.

We are following the species groups of *Anolis* as proposed and interpreted by Williams (1976 and 1992) and Rueda and Williams (1986). The new species, described here, increase the number of known species of the *tigrinus* group to seven, five in northern South America: *A. solitarius, A. menta, A. tigrinus, A. umbrivagus* n.sp. and *A. paravertebralis* n.sp., and two in southeastern Brazil: *A. pseudotigrinus* and *A. nasofrontalis*.

The following species of *Anolis* are known from the Sierra Nevada de Santa Marta, Colombia.

***Anolis umbrivagus*, new species**

Holotype: ICN 6181, adult male from Ciudad Perdida, Sierra Nevada de Santa Marta, Magdalena, Colombia, collected by Juan Manuel Renjifo.

Paratypes: All are topoparatypes from Ciudad Perdida, (ICN 5797-5800, 6180, 6182-6186, all females).

Diagnosis: A small alpha *Anolis*, member of the *tigrinus* group, related to *A. solitarius* from which it differs in having a smaller body size in adults: 37 to 46 mm (mean 42.3 mm), as compared to 46 to 51 (mean 48.4 mm) for the latter; in having a smaller dew lap in males that begins at the level of the orbit, and in having no dewlap or a rudimentary white fold in females. In *A. solitarius* the dewlap in males begins well before the level of the orbit, and females have a moderate blackish dewlap; and in coloration. *A. umbrivagus* males have a few spots on somewhat darker transversal body bands that do not cover part of the abdomen, and the females have a weakly indicated butterfly dark marking on the vertebral region, while the males of *A. solitarius* have conspicuous oblique black bands that reach and partially cover the abdomen. The new species has the tail more than twice as long as the body (2.11-2.35), while *A. solitarius* has the tail

less than twice as long than the body (1.62-2.00). The new species differs from *A. menta* in that the latter has dewlap in both sexes and large head scales including the snout. The latter species is larger, ranging from 50 to 56 mm (mean 53.2 mm). *A. umbrivagus* differs from *A. paravertebralis* n.sp. in not having enlarged and keeled paravertebral scale rows, as it is the case in the latter.

Description of the holotype and topoparatypes: Head elongate; upper head scales smooth, enlarged, smaller anteriorly (Fig. 1A, B). A frontal depression delimited by pronounced ridges extending from the supraorbital semicircles forward in a somewhat oblique form, and backwards encircling a less pronounced parietal depression. In the paratypes the frontal and parietal depressions are more or less pronounced.

On the snout the scales are smaller, irregular and arranged in vaguely defined transversal rows. Large supraorbital semicircle scales in contact with each other and with the large interparietal as well. In several paratypes the interparietal is partially separated from the large supraorbital semicircles. Interparietal large, somewhat squarish, flanked on each side by a large roundly triangular parietal. In the paratypes the interparietal is either

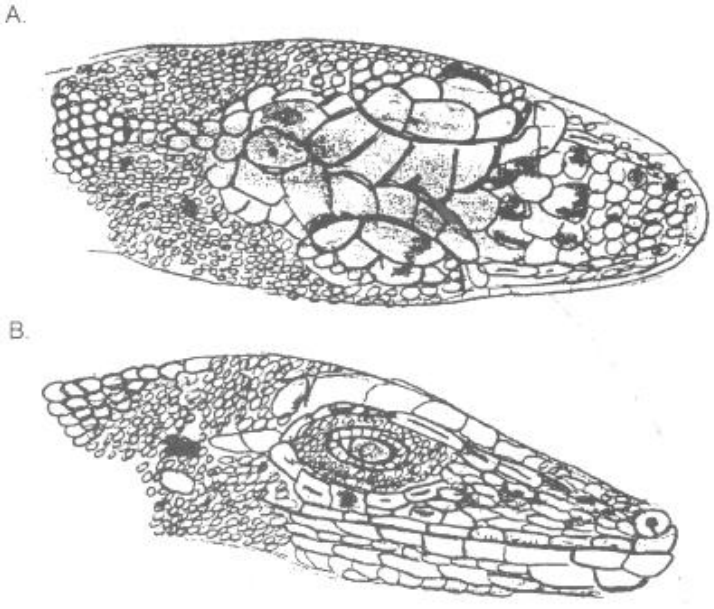

Figure 1. Head scales of *Anolis umbrivagus* n.sp. A. dorsal view, B. lateral view.

roundish, pear-shaped or squarish and almost always in contact with the supraorbital semicircles. The parietals are frequently represented by several somewhat smaller scales. The holotype has a postparietal knob and smaller knobs on each side on the parietal ridge delimiting the parietal depression. The postparietal knob corresponds to a projection on the parietal bone of the skull (Fig. 2). The paratypes do not have the lateral knobs or have them weekly indicated. The holotype has 5 canthals; 3-5 in the paratypes.

Eight scales across the snout at the level of the second canthals; 7-8 in the paratypes. The holotype has 5 scales between the supranasals; 5-7 in the paratypes.

Eight supralabials to the center of the eye; mostly 7, occasionally 8 in the paratypes. Nasal separated from the rostral by one scale; two paratypes have the nasal in contact with the rostral. Four loreal rows between the supralabials and the second canthal; 3-4 in the paratypes. The lowest row is the largest. Temporal small and granular but are smooth and increase in size near the parietal area and behind the eyes. Five to 6 large suboculars, in contact with the supralabials. Eye opening elliptical and tympanum about half the size of the interparietal. Seven and 8 supralabials to the center of the eye; 7-8, mostly seven, in the paratypes. Mental twice as long as high, semi divided. Three granules in contact with the mental between the first large sublabial; 3-4 in the paratypes. Eight sublabials in the holotype; usually 7 in the paratypes. Head length of the holotype 12 mm and 6.5 mm head width.

Scales on dorsum and flanks are somewhat swollen and granular, undifferentiated in the holotype, but in paratype females from the midbody on the middorsal rows are flattened and smooth and somewhat larger than the surrounding granular scales. Ventral scales larger than the granules on the sides, smooth, roundish or squarish and in transversal rows.

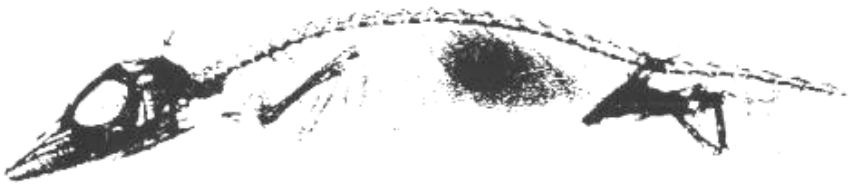

Figure 2. Lateral X-rays view of skeleton of *A. umbrivagus* n. sp. showing the parietal knob (arrow).

On the tail, the scales are larger than the dorsal body granules and keeled, especially on the posterior part of the tail. The subcaudals are larger than the caudal dorsal scales; holotype has two large postanal scales; absent in female paratypes.

Upper part of the forelimbs with small keeled scales; hind limbs smooth. Lower part of the limbs with smooth scales, larger than the dorsal and lateral granules. Tibia length of the holotype, 9 mm; almost 8-10 mm in the paratypes. Eighteen lamellae under phalanges ii and iii of the fourth toe; 17-20, mostly 18, in the paratypes.

Dewlap present in the holotype male, large extending from the level of the eye to beyond the forelimbs, partially naked with light scales in longitudinal rows. Dewlap absent in females or somewhat rudimentary, represented by a light gular fold. ICN 5797 and 5799 have a reduced dewlap.

Coloration in preservative: Brownish body and tail, with some darker poorly defined lateral transversal crossbands. A dark spot on sides behind the head and on the axial region of the forelimbs. Rostral, and lower head, including supralabials, belly and anterior part of the tail light, with some small irregular dark brown lateroventral spots. Dewlap white (light) with white scales. Female paratypes light brown above with a butterfly-like dark spots on middorsal area; light below with a dark gular area, and the gular fold or rudimentary dewlap white.

The species is the smallest of the *tigrinus* group anoles. Holotype has 41.5 mm body length; 89 mm tail length (tail 2.17 times the body length). All paratypes have the tail length more than two times longer than the body length (range 2.11-2.35). Body length of the paratypes range between 37 and 46 mm (mean 42.3 mm).

Ecology: Ciudad Perdida is in the cloud forest region, of the Santa Marta massif between 1100 m and 2000 m.

Etymology: "umbrivagus", Latin for wanderer of the shadows, alluding to its habitat of the rain forest shady environment.

***Anolis paravertebralis*, new species**

Holotype: ANSP 19713, adult male from Hacienda Cincinnati, San Lorenzo, Magdalena, (Sierra Nevada de Santa Marta), Colombia, 1530 m, collected by J.A.G. Rehn and M. Hubbard, 19-23 July, 1920.

Diagnosis: A small alpha *Anolis* of the *tigrinus* group. *A. paravertebralis* differs from *A. solitarius* in

NOVEDADES COLOMBIANAS Volumen 8 Numero 1 Enero - 2005

having several rows of vertebral scales enlarged and slightly keeled, and in coloration; from *A. nebularis* and *A. menta* in being unicolor instead of brown banded as it is characteristic of the males of these two species. On the other hand, *A. paravertebralis* differs from *A. sanctamartae* in not having a white line from subocular region to beyond the ear. In addition, it has the supraorbital semicircles and the parietal depression without pronounced edges. Large supraorbital semicircle scales are broadly in contact. The interparietal larger than the ear. Strongly keeled and elongated suboculars that continue as an elevated ridge toward the tympanic area. The middorsal scales, 2 or more rows enlarged, flattened, subimbricate and slightly keeled. Lateral scales smaller and granular.

Description of the holotype: Head scales moderately large and smooth; 6 scales across the snout between the second canthals (Fig.3). Frontal depression distinct; rostral protuberant, well visible from above, in contact with the anterior nasal; 3 scales between the internasals. Supraorbital semicircles broadly in contact with each other, with the interparietal and with the supraorbital disks. The latter comprise 6 to 8 large smooth scales, the reminder of the supraocular area covered by large granular scales; 5 canthal rows and 2 to 6 loreal rows. The interparietal enlarged, about 1.8 times larger than the ear. One long keeled supraciliary. Temporal and supratemporal scales small and granular; 7 strongly keeled and elongated suboculars that continue as an elevated ridge toward the tympanic area; 8 supralabials to the center of the orbit, the last one in contact with two sublabials. Mental semidivided, in contact with two granular scales between the first two infralabials. A moderate parietal knob present, the parietal depression indistinct.

Trunk: Middorsal scales (2 to 12 rows) enlarged, flattened, subimbricate and slightly keeled. The scales on the flanks smaller and granular. Ventrals slightly larger than the middorsals, flat, rounded, smooth and slightly imbricate.

Dewlap with rows of moderately large and elongated scales widely separated from each other by naked skin; at the edge of the dewlap several flat, smooth scales rows in close contact. Scales on limbs flat, smooth and enlarged; those on the digits slightly unicarinate; 18 lamellae under phalanges II and III of the fourth toe. Tail compressed. Caudal scales unicarinate, keeled and imbricate. The snout to vent size of the holotype is 50 mm

Color of the preserved male holo-

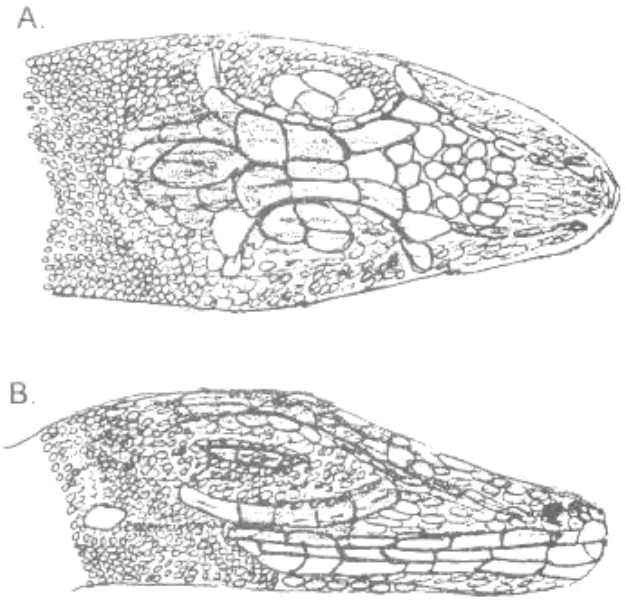

Figure 3. Head scales of *A. paravertebralis* n. sp. A. dorsal view, B. lateral view

type: Dorsum light gray, with somewhat blurred vertebral spots. A series of black spots conform a longitudinal stripe from the ear opening to the middle part of the flanks. Top of the head grayish irregularly spotted with light brown. Supralabials whitish, spotted with light brown. Head below whitish yellow spotted with dark. Venter light blue. Limbs and tail irregularly banded with brown. Dewlap white.

Ecology: The only known specimen comes from Hacienda Cincinnati, which is a coffee plantation located on the western slopes of San Lorenzo, between 900 to 1650 m.

Etymology: paravertebralis alludes to the enlarged, subimbricate and somewhat enlarged middorsal scale rows.

Anolis auratus Daudin

Anolis auratus DAUDIN 1802, Hist. Nat. Rept., 4: 89. Type locality: unknown.

Norops auratus: Ruthven 1922, Misc. Publ. Mus. Zool. Univ. Mich., 8:59.

This is a beta *Anolis*, member of the auratus group, with charac-terized by large and keeled rhomboidal dorsals and dewlap in both sexes.

The S-V length in adults ranges from 38 to 56 in both sexes.

Notes: distributed in Panama, Colombia, Ecuador, Venezuela to French Guiana. In Sierra Nevada de Santa Marta it is found in the northern, northwestern and southeastern part, from sea level to about 2400 m. It is very abundant in Colombia and in the SNSM it occurs from xerophytic lowland forest, to humid evergreen seasonal forest, in open woods and in clearings. It is usually found in grass, low bushes and around open marshes. Ruthven (1922) observed that this species was abundant in Bolivar and Fundación. Possibly, females lay only one egg at a time. A female from Pozos Colorados had one egg, measuring 11x6 mm

Material examined: Sierra Nevada de Santa Marta. Cesar: Las Pavas, <500 m (UMMZ 54763-5); Pueblo Viejo, 2400 m (UMMZ 55686); Valledupar, 206 m (UMMZ 54751-2); Valencia, 100 m (UMMZ 54754-5, 54757-8, 54760-2, 54766). Guajira: Arroyo de Arenas, río Barbacoa, 150 m (UMMZ 54746-50). Magdalena: Bolívar, 45 m (UMMZ 54743(2)-45); Fundación, 60 m (UMMZ 48221-7, 488230, 48232-3); Mamatoco, <20 m (UMMZ 48228, 48231, 48236, 48238); Minca, 625 m (UMMZ 488217-20, 48229, 48234-5, 48239-42); Palomina, 1000 m (UMMZ 55684); Pozos Colorados, ca. 11 km S of Santa Marta, <50 m (AMNH 105896-106007); Santa Marta, 0 m (UMMZ 48237).

Anolis biporcatus biporcatus (Wiegmann)

D.(actiloa) biporcata Wiegmann, 1834. Herpetología Mexicana: 47. Type locality: México. MEDEM, 1968, Rev. Acad. Colomb. Cienc. Exact. Fis. Nat. 13(50): 168.

Anolis solifer Ruthven, 1916, Occ. Pap. Mus. Zool. Univ. Michigan, 32:4. Type locality: La Concepción, Santa Marta Mountains, Colombia. Ruthven, 1922, Misc. Publ. Mus. Zool. Univ. Michigan, 8:58.

Anolis biporcatus biporcatus Williams, 1966, Breviora, 239:9.

This is a beta *Anolis*, member of the *petersi* group characterized by moderately enlarged dewlap with strongly enlarged keels. The S-V length in adults is around 65 mm.
Notes: Williams (1966) considered *A. solifer* as a synonym of *A. biporcatus*, because the type specimen does not differ from the Panamanian form of that species ("except for exceptionally short hind limb").

It is distributed from Mexico to northern Colombia. In Sierra Neva-

da de Santa Marta it has been reported from the cloud forest in the northwestern of the Sierra at 1000 m. According to Williams (1966) this is a strongly arboreal species.

Material examined: Sierra Nevada de Santa Marta. Magdalena: La Concepción, 1000 m (MCZ 6549, type of *Anolis solifer).*

Anolis menta Ayala, Harris & Williams

Anolis menta Ayala, Harris & Williams, 1984. Pap. Avuls. Zool. S. Paulo, 35(12):135. Type locality: Cuchilla Hierbabuena, 4 km southeast of San Pedro de la Sierra in Sierra Nevada de Santa Marta Mountains, Magdalena Department, Colombia (10° 53'N; 74° 1'W).

This is an alpha *Anolis*, member of the *tigrinus* group with large bicolored dewlap in both sexes and yellowish green body in males. S-V length of adults ranges from 50 to - 56 mm.

Notes: Known only from the northern side of the Sierra Nevada de Santa Marta. Ayala *et al* (1984) reported that the specimens from Cuchilla Hierbabuena, "were sleeping at night on exposed sites along the edges of a cool cloud forest premontane/lower montane wet forest... two clung on the edges of leaves 1-3 m high. The type and one of the females were within one half meter of each other on grass blades about 70 cm above the ground".

Material examined: Sierra Nevada de Santa Marta. Magdalena: "West side of the Sierra Nevada de Santa Marta", no additional data (MCZ 29685). Cuchilla Hierbabuena, 4 km southeast of San Pedro de la Sierra (10° 53'N; 74° 1'W), 2000 m (MCZ 159013, holotype; 11159014, ICN 3682, paratypes).

Anolis onca (O'Shaugnessy)

Norops onca O'Shaughnessy, 1875, Ann. Mag.Nat. Hist., (4)15: 280. Type locality: Venezuela and the Island of Dominica.

Tropidodactylus onca: Ruthven, 1922. Misc. Publ. Mus. Zool. Univ. Michigan, 8:59. *Anolis onca*: Williams, 1974 Breviora, 421:1-21.

A beta *Anolis* of the *onca* group with strongly multicarinate head scales and no adhesive pads under phalanges. Yellowish brown or grayish body, spotted with brown, and a blackish dewlap in males. S-V length of adults vary from 50 to 72 mm.

Notes: Distributed in northern Colombia, northeastern and northern Venezuela, including Margarita

Island. In the Sierra it is abundant in xerophytic lowland scrub forest. It is terrestrial, active during the day - morning and afternoon, avoiding intense noon heat - in the sandy, stony terrain. While the species is not arboreal it is occasionally found on the roots projecting above the ground of the scrubs and other xerophytic vegetation. During the night and around high noon it hides beneath stones and dry tree trunks, as well as in burrows made by other animals, including whiptail lizards (*Cnemidophorus lemniscatus*), and crustaceans.

Material examined: Guajira: Riohacha, 0 m (UMMZ 54799, 54801-7, 54810-13).

Anolis sanctamartæ Williams

Anolis sanctamartæ Williams, 1982. Breviora, 467: 16. Type locality: Colombia, Cesar, San Sebastián de Rabago, Sierra Nevada de Santa Marta.

This is a beta *Anolis*, member of the *punctatus* group characterized by having some supracephalic scales keeled and a grayish brown body with some brown paravertebral blotches. Males with large dewlap. S-V length of adults range from 50 to 55 mm.

Notes: Known only from the savanna region of the southeastern part of the Sierra Nevada de Santa Marta at about 2000 m. *A. sanctamartæ* is a perplexing species that has features of both major South American species groups: *A. punctatus* and *A. tigrinus*.

Material examined: Cesar: San Sebastián de Rabago, 2000 m (CAS 113922 holotype, CAS 113924, MCZ 113923 paratypes).

Anolis solitarius Ruthven

Anolis solitarius Ruthven, 1916. Occ. Pap. Mus. Zool. Univ. Michigan, 32:2. Type locality: San Lorenzo, Santa Marta Mountains, Colombia, 1500 m. Ruthven, 1922 (in part). Misc. Publ. Mus. Zool. Univ. Michigan, 8:58. Medem, 1968. Rev. Acad. Colomb. Cienc. Exac. Fis. Nat., 13(50):169.

An alpha *Anolis*, member of the *tigrinus* group. It is a green anoles with a few brown vertebral patches and a moderate dewlap in males; barely present in females. S-V length in adults varies from 38 to 52 mm.

Notes: Endemic to Sierra Nevada de Santa Marta, found in the heavily forested area of the cloud forest in northern and northwestern part, above 750 m. Ruthven (1922) reported that individuals of this species are found on the ground or in trees, as well

as associated with shrubs and vines.

Material examined: Magdalena: Alto de Mira, border of Río Julepia, 780 m (ICN, not cataloged specimens); Ciudad Perdida, 1100 m (ICN 5797-5800, 6180-6186); Palomina, 1500 m (MCZ 12053 paratype); San Lorenzo, 1500 m (UMMZ 48303 holotype, 48319-20 paratypes)

Anolis tropidogaster Hallowell

Anolis (Draconura) tropidogaster Hallowell, 1857. Proc. Acad. Nat. Sci. Philadelphia, 1857: 224. Type locality: Colombia.

Anolis gaigei Ruthven, 1916. Occas. Pap. Mus. Zool. Univ. Michigan, 32: 6. Type Locality: San Lorenzo, Santa Marta mountains, Colombia.

This is a beta *Anolis*, member of the *auratus* group with small and keeled dorsals and brown body and a reddish dewlap in males. This small brownish anoles has a S-V length of adults ranging between 41 to 45 mm

Notes: distributed from Mexico to northern Colombia. In Sierra Nevada de Santa Marta it is found in the northern, northwestern, eastern and southeastern part, from about 100 to 2500 m. According to Ruthven (1922), this species is found in dry as well as in wet forest, between 180 and 800 m. When found above 800 m, it is restricted to clearings in the cloud forest.

Material examined: Cesar: Las Pavas, <500 m (UMMZ 54826-30, 56513); Pueblo Viejo, 2400 m (MCZ 6562 paratype of *A. gaigei,* 171282-86, UMMZ 48322-3); Valencia, 100 m (UMMZ 54822-5). Guajira: Arroyo de Arenas, 150 m (UMMZ 54818-20); Loma Larga, 750-900 m (UMMZ 54821); Magdalena: Aguadulce, 900 m (UMMZ 48329-34 paratypes of *A. gaigei*); Fundación, 60 m (UMMZ 48327-8 paratypes of *A. gaigei*); La Tigrera, 180-1200 m (UMMZ 48324 paratype of *Anolis gaigei)*; Minca, 625 m (UMMZ 48325-6 paratypes of *A. gaigei);* Palomina, 1500 m (UMMZ 48321, 55685(4 spec.), 56014); Quebrada (this locality probably refers to Quebrada Viernes Santo in San Lorenzo) (UMMZ 54816); San Lorenzo, 810 m (UMMZ 48304 holotype of *A. gaigei,* MCZ 17122090-92, 1171294-5??); San Lorenzo, Hacienda Cincinnati, 1500 m (ANSP 119714-5, UMMZ 54814-5); Tamocol (UMMZ 54817).

NOVEDADES COLOMBIANAS Volumen 8 Número 1 Enero - 2005

Key to the species of *Anolis* of Sierra Nevada de Santa Marta, Colombia

1. Most of head scales strongly multicarinate; no adhesive subdigital pads under phalanges three or four ..... *A. onca*
1a. Head scales with single keels or smooth; subdigital pads under phalanges present 2

2. More than six rows of large, keeled and rhomboid middorsal scales, distinct from lateral granules; large and keeled ventrals similar to dorsals; black dewlap in both sexes ..... *A. auratus*
2a. Dorsals not rhomboid but granular, larger or not than laterals. Dewlap not back or with black spots 3

3. At least some supracephalic scales keeled. 4
3a. All supracephalic scales smooth 6

4. Supraorbital semicircles of large scales in contact; white line from subocular region to beyond ear ..... *A. sanctamartæ*
4a. Supraorbital semicircles of small scales not in contact, separated by one or more scales 5

5. Dorsal scales small and keeled, but larger than the laterals which are granular and smaller than ventrals; small anoles ..... *A. tropidogaster*
5a. Dorsal granules slightly keeled and as big as the laterals. Ventrals larger, rounded and keeled; medium size anoles..... *A. b. biporcatus*

6. Middorsal scale rows larger and keeled; coloration almost uniform..... ..... *A. paravertebralis*, n. sp.
6a. Middorsal scales not keeled; coloration with at least some dark crossbands in males 7

7. Black dorsal crossbands clearly distinct, extending laterally to belly; males and females with dark dewlaps 8
7a. Not or poorly developed dark dorsal spots in males, or longitudinal dorsal stripes; females without or poorly marked white dewlaps..... ..... *A. umbrivagus*, n. sp.

8. Males with almost uniform dark brown or black head; females with large black-spotted dewlap ..... *A. menta*

8a. Males with light head and black crossbars; females with light unspotted dewlap ..... *A. solitarius*

Clave para las especies de *Anolis* de la Sierra Nevada de Santa Marta, Colombia

1. Mayor parte de las escamas de la cabeza fuertemente multicarinada; sin cojines adhesivos debajo de falanges 3 y 4 ..... *A. onca*
1a. Escamas cefálicas con quilla sencilla o lisas; falanges con cojines adhesivos 2

2. Mas de 6 hileras de escamas medias dorsales, grandes, aquilladas y romboides, distintos de los gránulos laterales; ventrales grandes y aquilladas, similares a las dorsales; pliegue gular negro presente en los dos sexos ..... *A. auratus*
2a. Dorsales no romboidales pero granulares, más grandes o no más grandes que las laterales; pliegue gular no es negro ni con manchas negras 3

3. Por lo menos algunas escamas supracefálicas aquilladas 4
3a. Todas las escamas supracefálicas lisas 6

4. Los circulos supraorbitales de escamas grande en contacto; línea blanca de la región subocular hasta mas allá de la apertura del oído..... *A. sanctamartæ*
4ª. Circulos supra-orbitales de escamas pequeñas separados por una o más escamas 5

5. Escamas dorsales pequeñas y aquilladas, pero más grandes que las laterales que son granulares y más pequeñas que las ventrales; animales pequeños ..... *A. tropidogaster*
5a. Escamas dorsales ligeramente aquilladas, y tan grandes como las laterales. Ventrales más grandes, redondeadas y aquilladas; animales de tamaño mediano ..... *A. b. biporcatus*

6. Hileras de escamas paravertebrales más grandes y aquilladas; coloración casi uniforme ..... *A. paravertebralis*, n.sp.
6a. Escamas dorsales aproximadamente de igual tamaño que las escamas lisas laterales; coloración con algunas bandas transversales en los machos 7

7. Bandas dorsales transversales negras bien distintas, se extienden lateralmente hasta el abdomen; machos y hembras con pliegue gular oscuro 8

7a. Machos sin bandas dorsales transversales, o poco distinguibles, o con líneas longitudinales; hembras sin pliegues o con pliegues blancos, poco desarrollados ..... *A. umbrivagus,* n.sp.

8 . Machos con cabeza casi uniformemente marrón oscura o negra; hembras con un pliegue grande, manchado de negro .... *A. menta*

8a. Machos con cabeza clara y barras transversales negras; hembras con pliegue claro,sin manchas ..... *A. solitarius*

Acknowledgements

For the permission to examine the specimens the senior author is grateful to the following museums and persons in charge of their collections: to Ed Malnate and Ned S. Gilmore at the Academy of Natural Science of Philadelphia (ANSP); Charles W. Myers and Richard G. Zweifel, at the American Museum of Natural History, New York (AMNH); Olga Castaño and the late Pedro Ruiz at the Instituto de Ciencias Naturales, Universidad Nacional de Colombia (ICN); the late Jorge Hernández and José V. Rueda at the Instituto de Recursos Naturales Renovables y del Ambiente, Bogotá (IND); the late Ernest E. Williams and Jose P. Rosado, at the Museum of Comparative Zoology, Harvard University (MCZ); Arnold Kluge and Greg Schneider at the University of Michigan Museum of Zoology (UMMZ).

The senior author is particularly grateful to the late Dr. Ernest E. Williams for his encouragement and advice and for examining most of the specimens of the new species, described here, confirming their taxonomic status. Our special thanks go to Juan Mayr and to the personnel of the Fundación Pro Sierra Nevada de Santa Marta, Colombia for arranging our research trip to the Sierra and the stay at their Alto de Mira research camp. Gratitude also goes to Santiago Ayerbe director of the Museo de Historia Natural de la Universidad de Cauca, Popayán, Colombia, and to Allan Tannenbaum for the photos.

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